

WHAT IS CLAIMED IS:

1. A television receiver capable of receiving digital television (DTV) signals, the receiver comprising:

a DTV received signal processing path;

an analog television signal rejection filter to filter one or more spectral components from the frequency spectrum of a received signal;

a sync signal detector to detect the presence of analog television signal synchronization pulses within the frequency spectrum of the received signal; and

switching circuitry to include the analog television signal rejection filter in the DTV received signal processing path when the sync signal detector detects the presence of analog television signal synchronization pulses within the received signal.

2. The television receiver of claim 1, wherein the switching circuitry comprises a signal controller circuit that senses the pulse repetition rate of the analog television signal synchronization pulses to verify that a detected analog television signal conforms to a broadcast format for which the analog television signal rejection filter is effective.

3. The television receiver of claim 2, wherein the switching circuitry compares the pulse repetition rate to a predetermined pulse repetition rate to perform the verification.

4. The television receiver of claim 3, wherein the predetermined pulse repetition rate is programmable to either an NTSC-format pulse repetition rate or a PAL-format pulse repetition rate.

5. The television receiver of claim 1, wherein the detected analog television signal synchronization pulses comprise vertical, horizontal, or vertical and horizontal synchronization pulses.

6. The television receiver of claim 1, wherein the analog television signal rejection filter is an NTSC rejection filter, and wherein the sync signal detector detects NTSC synchronization pulses.

7. The television receiver of claim 1, wherein the analog television signal rejection filter is a

PAL rejection filter, and wherein the sync signal detector detects PAL synchronization pulses.

8. The television receiver of claim 1, wherein the switching circuitry comprises:

5 a multiplexer inserted in the DTV received signal processing path and having a first data input connected to the output of the analog television signal rejection filter, a second data input that bypasses the analog television signal rejection filter, and a select input to select one of the data inputs as a multiplexer output; and

10 a signal controller having an output connected to the multiplexer select input, the signal controller sensing the pulse repetition rate of the analog television signal synchronization pulses and outputting a signal to select the multiplexer first data input when analog television signal synchronization pulses of a predetermined pulse repetition rate are received.

15 9. The television receiver of claim 8, wherein the predetermined pulse repetition rate is programmable between a first pulse repetition rate corresponding to an NTSC broadcast format and a second pulse repetition rate corresponding to a PAL broadcast format.

20 10. The television receiver of claim 1, further comprising an analog television signal processing path for receiving analog television signals, wherein the sync signal detector comprises part of the analog television signal processing path.

25 11. The television receiver of claim 1, wherein the sync signal detector indicates the relative strength of synchronization pulses within the frequency spectrum of the received signal, and wherein the switching circuitry requires that detected analog television signal synchronization pulses have at least a minimum relative strength before the switching circuitry includes the analog television signal rejection filter in the DTV received signal processing path.

30 12. A television receiver capable of receiving digital television (DTV) signals, the receiver comprising:

a tuner to select a television channel and output a channel signal;

a demodulator to receive the channel signal and output a demodulated channel signal;

a sync separator to receive the channel signal, detect analog television signal synchronization pulses within the channel signal, and output synchronization pulse signals;

a signal controller to receive the synchronization pulse signals from the sync separator and generate a control signal indicating whether an analog television signal exists within the channel signal;

an analog television signal rejection filter to filter one or more spectral components
5 from the frequency spectrum of the demodulated channel signal and output a filtered demodulated channel signal; and

a multiplexer to select either the demodulated channel signal or the filtered demodulated channel signal, based on the control signal.

10 13. An integrated circuit capable of processing digital television (DTV) signals, the integrated circuit comprising:

a demodulator to receive a channel signal and output a demodulated channel signal;

a signal controller to receive analog television signal synchronization pulse signals from a channel signal sync separator and generate a control signal indicating whether an
15 analog television signal exists within the channel signal;

an analog television signal rejection filter to filter one or more spectral components from the frequency spectrum of the demodulated channel signal and output a filtered demodulated channel signal; and

a multiplexer to select either the demodulated channel signal or the filtered
20 demodulated channel signal, based on the control signal.

14. The integrated circuit of claim 13, further comprising the channel signal sync separator.

15. The integrated circuit of claim 14, further comprising an analog television signal
25 processing path for receiving analog television signals, wherein the channel sync signal separator comprises part of the analog television signal processing path.

16. A method of processing a digital television (DTV) signal, the method comprising:

detecting analog television synchronization signals within the frequency band of the
30 DTV signal, when such synchronization signals are detectable within the frequency band of the DTV signal;

determining, from the detected analog television synchronization signals, whether an analog television signal is present within the frequency band of the DTV signal; and

when it is determined that an analog television signal is present, filtering the DTV

signal through an analog television signal rejection filter prior to decoding the DTV signal.

17. The method of claim 16, wherein determining whether an analog television signal is present comprises:

5 measuring the pulse repetition rate of the detected analog television synchronization signals;

 comparing the measured pulse repetition rate to an expected pulse repetition rate for an analog television synchronization signal of a predetermined analog television signal format; and

10 declaring that an analog television signal is present when the measured pulse repetition rate substantially matches the expected pulse repetition rate.

18. The method of claim 17, wherein the detected analog television synchronization signals comprise vertical synchronization signals and the expected pulse repetition rate is the
15 expected vertical sync rate of the predetermined analog television signal format.

19. The method of claim 17, wherein the detected analog television synchronization signals comprise horizontal synchronization signals and the expected pulse repetition rate is the
20 expected horizontal sync rate of the predetermined analog television signal format.

20. The method of claim 19, wherein the detected analog television synchronization signals further comprise vertical synchronization signals, and the expected pulse repetition rate further comprises the expected vertical sync rate of the predetermined analog television signal format, wherein:

25 measuring the pulse repetition rate of the detected analog television synchronization signals comprises measuring a vertical sync rate and a horizontal sync rate;

 comparing the measured pulse repetition rate to an expected pulse repetition rate comprises comparing the measured vertical sync rate to the expected vertical sync rate and comparing the measured horizontal sync rate to the expected horizontal sync rate; and

30 declaring that an analog television signal is present comprises making the declaration when the measured vertical sync rate substantially matches the expected vertical sync rate and the measured horizontal sync rate substantially matches the expected horizontal sync rate.

21. The method of claim 17, wherein the expected pulse repetition rate is selectable between at least two rates representative of different analog television signal formats.

22. The method of claim 16, wherein extracting analog television signals comprises

5 measuring relative signal energy present at a frequency corresponding to a synchronization signal pulse repetition rate.

23. The method of claim 22, wherein determining whether an analog television signal is present comprises requiring that the relative signal energy present at the frequency

10 corresponding to a synchronization signal pulse repetition rate have at least a minimum relative strength before it is determined that an analog television signal is present.